

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Amended Claims

*Please substitute pending claim 13 with the corresponding amended claim as follows:*

11. (Amended) A reactor comprising:

(a) an outer wall;

(b) a plurality of heat exchanger panels arranged within the outer wall at an angle thereto such as to extend inwardly to an interior of the reactor, wherein each of the heat exchanger panels comprises a printed circuit heat exchange (PCHE) plate;

(c) a plurality of reaction zones separated by the heat exchanger panels but in fluid communication with one another via the heat exchanger panels, and forming thereby in succession a plurality of a segmented production flow paths; and

(d) baffles located within each reaction zone, wherein each of the baffles extends from a heat exchanger surface of an associated one of the heat exchanger panels to define a boundary for the associated reaction zone and to cause the production flow paths to extend between a central part of the reactor to an outer peripheral part thereof.

12. (Amended) A reactor according to claim 11, wherein the configuration of each of the production flow paths is that of a spiral.

13. (Amended) A reactor according to claim 11, further comprising two concentric catalyst containment screens, between which the a reaction zone zones are is contained.

22. (Amended) A reactor comprising:

- (a) a containment shell;
- (b) a plurality of heat exchanger panels that are spaced circumferentially around a longitudinal axis of the containment shell so as to form reaction zones therebetween, wherein each of the heat exchanger panels comprises a printed circuit heat exchange (PCHE) plate;
- (c) a plurality of catalyst beds that are disposed in the reaction zones; and
- (d) a plurality of baffles that are located in the containment shell to form at least one flow paths in the catalyst beds, wherein each of the flow paths contains a plurality of segments that are bounded by the panels and that are connected with one another via passageways in the panels, and wherein additional passageways are formed in the panels for the passage of a heat exchange medium therethrough.

27. (Amended) A reactor according to claim 26, wherein the additional passageways open into an inlets of the flow paths, thereby permitting feed reactants to be used as the heat exchange medium.

29. (Amended) A reactor comprising:

- (a) a cylindrical containment shell;
- (b) a plurality of heat exchanger panels that are spaced around a central axis of the containment shell so as to form reaction zones therebetween, that extend radially relative to the central axis, and that have passageways formed therethrough, wherein each of the heat exchanger panels comprises a printed circuit heat exchange (PCHE) plate;
- (c) a plurality of catalyst beds that are disposed in the reaction zones; and
- (d) a plurality of baffles that are located in the containment shell to form at least one generally spiral flow paths each having a radially inner inlet end and a radially outer outlet end, wherein each of the flow paths contains a plurality of segments that are bounded by the panels and that are connected to one another by the passageways in the panels, and wherein additional passageways are formed radially through the panels for the flow of a heat exchange medium therethrough.

30. (Amended) The reactor according to claim 29, wherein outlets of the additional passageways are in fluid communication with the inlets of the flow paths, thereby permitting feed reactants to be used as the heat exchange medium.

32. (Amended) A method comprising:

(a) directing reactants at least generally circumferentially of a reactor through a plurality of at least one flow paths in catalyst beds in the reactor, the flow path being separated from one another segmented by baffles;

(b) as the reactants flow through the flow paths, directing the reactants through passages in heat exchanger panels that bound reaction zones within the reactor and that bound ends of flow path segments making up the flow paths; wherein each of the heat exchanger panels comprises a printed circuit heat exchange (PCHE) plate and

(c) directing a heat exchange medium through additional passageways in the panels to alter the temperature of the reactants flowing through the passageways.